Mr. Ivan Pinedo
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4/12/21

Re: Development impacts upon existing trees.
407 University Avenue,
Los Gatos, CA 95125

Greetings Mr. Pinedo,

Thank you for the opportunity to assist you with your tree related issue. I spoke with Mr. Todd Kalbfeld, Landscape Architect on or about Thursday, February 11, 2021 regarding your proposed project at the above referenced address which includes: demolition of the existing structure and subsequent construction of a new home with a detached garage. He asked that I visit the property to assess the effect upon existing trees related to your project and to present my findings in written format. This letter will serve to summarize my observations and recommendations.

SUMMARY

Eight protected trees are at risk of adverse impacts.

- Coast live oaks #2-4, 6, and 8 will be retained.
  - Tree #2 shall be protected using Type III tree protection wrap and will likely require root pruning.
  - Trees #3, 4, and 8 shall be protected by erecting Type I tree protection fencing and each will likely require root pruning.
  - Tree #6 shall be protected using Type III tree protection wrap and will likely require root pruning.
- Coast live oak #1, and Olives #5 and 7 are recommended for removal.

ASSIGNMENT

Provide written observations and recommendations for all tree protection and preservation guidelines as outlined in the *Town of Los Gatos' Code of Ordinances, CHAPTER 29 – ZONING REGULATIONS; DIVISION 2 – TREE PROTECTION; Sec. 29.10.0950 et al.*

BACKGROUND

I collected the tree and site date at the project address on Monday, February 22, 2021. I visited the site again on Monday, March 22, 2021 to meet with Mr. Kalbfeld and to discuss the project in greater detail.

LIMITS OF THE ASSIGNMENT

All observations were made from the ground. No root collar excavations were performed.

PURPOSE AND USE OF REPORT

The purpose of this report is to provide a tree protection and preservation report that will be submitted to the Town of Los Gatos for the project located at 407 University Avenue.

OBSERVATIONS

The 8 protected trees at risk of adverse impacts are all growing along the perimeter of the property, they include: 6 coast live oaks (***Quercus agrifolia***) and 2 olives (***Olea europaea***.) There are 3 additional non-protected specimens which include: 1 privet (***Ligustrum lucidum***), 1 cotoneaster (***Cotoneaster spp***.), and 1 Japanese loquat (***Eriobotrya japonica***).

Tree #1 is a maturing single-stemmed coast live oak that measures 24.7 inches in **diameter at breast height (DBH)** with a crown spread of 35 feet**.** It is a "large protected tree." See Los Gatos Code of Ordinances Sec. 29.10.0994 below. The tree is located in front along the southern property line and appears to be in a fair to good state of structural well-being with less than expected leaf density and liberal amounts of small stem deadwood. The tree was over-topped by the adjacent oak #2 producing an asymmetric **crown**. The tree has horizontal and over-extended **scaffold stems** that reach over the side walk toward the street. The **buttress roots** of the tree appear to have uplifted and displaced the existing cement driveway by approximately 10 inches.

Tree #2 is a maturing single-stemmed coast live oak that measures 21.4 inches DBH with a crown spread of 40 feet, most of which is over hanging the adjacent property, and is located next to tree #1. The tree appears to be in a good state of structural and physiological well-being.

Tree #3 is a maturing single-stemmed coast live oak that measures 15.7 inches DBH with a crown spread of 35 feet and is located in the back left hand corner at the rear property line. The tree appears to be in a good state of structural and physiological well-being.

Tree #4 is a maturing single-stemmed coast live oak that measures 20 inches DBH with a crown spread of 30 feet that is located next to tree #3. The tree appears to be in a good state of structural and physiological well-being.

Tree #5 is a maturing multi-stemmed olive with combined stem diameters that measure 20.6 inches DBH with a crown spread of 20 feet. The tree is located next to tree #4 and appears to be in a fair to good state of structural and physiological well-being.

Tree #6 is maturing single-stemmed coast live oak that measures 22 inches DBH with a crown spread of 45 feet, most of which is over hanging the adjacent properties and is located next to tree #5. The tree appears to be in a good state of structural and physiological well-being.

Tree #7 is a maturing multi-stemmed olive with combined stem diameters that measure 16 inches measured at 36 inches above level grade with a crown spread of 20 feet. The tree is located along the rear right hand side property line and appears to be in a fair to good state of structural and physiological well-being.

Tree #8 is a maturing single stemmed coast live oak that measures approximately 21.5 inches DBH with a crown spread of 60 feet, most of which is over hanging the adjacent property. The tree is located in back on the right-hand side property line.

Tree Table

Tree #	Common Name	Species	DBH (in.)	Spread (ft.)	Condition (0-5)	Suitability	Impacts	Disposition	TPZ (ft.)
1[1]	Coast Live Oak	***Quercus agrifolia***	24.7	35	Good	High	Root loss, direct impacts.	Remove[2]	N/A
2	Coast Live Oak	***Quercus agrifolia***	21.4	40	Good	High	Root loss, direct impacts.	Type III TPZ	N/A
3	Coast Live Oak	***Quercus agrifolia***	15.7	35	Good	High	Root loss, direct impacts.	Type I TPZ	10
4	Coast Live Oak	***Quercus agrifolia***	20	35	Good	High	Root loss, direct impacts.	Type I TPZ	10
5	Olive	***Olea europaea***	6.6 7.5 6.5	20	Fair	Low	Root loss, direct impacts.	Remove[3]	N/A
6	Coast Live Oak	***Quercus agrifolia***	22	45	Good	High	Root loss, direct impacts.	Type III TPZ	N/A
7	Olive	***Olea europaea***	7.3* 4.9* 3.8*	15	Fair	Low	Root loss, direct impacts.	Remove[3]	N/A
8	Coast Live Oak	***Quercus agrifolia***	21.5	60	Good	Moderate	Root loss, direct impacts.	Type I TPZ	11

[1]Large protected tree.

[2]Replace tree with four 24-inch box trees; or two 36-inch box trees; or Four 15-gallon trees.

[3]Replace tree with three 24-inch box trees; or three 15-gallon trees.

[4]Replace tree with six 24-inch box trees; or three 36-inch box trees.

*Measured at 36 inches above level grade.

See below: Tree Canopy Replacement Standard — Town of Los Gatos

Town of Los Gatos Code of Ordinances:

Sec. 29.10.0955. - Definitions.

Building envelope means the area of a parcel (1) upon which, under applicable zoning regulations, a structure may be built outside of required setbacks without a variance or; (2) that is necessary for the construction of primary access to structures located on the parcel, where there exists no feasible means of access which would avoid protected trees. On single-family residential parcels, the portion of the parcel deemed to be the building envelope access shall not exceed ten (10) feet in width.

Heritage tree means a tree or grouping of trees specifically designated by action of the Town Council, upon the recommendation of the Historic Preservation Commission, that possess exceptional aesthetic, biological, cultural, or historic value and is expected to have a continuing contribution to the community,

Large protected tree means any oak (Quercus), California buckeye (Aesculus californica), or Pacific madrone (Arbutus menziesii) which has a 24-inch or greater diameter (75-inch circumference); or any other species of tree with a 48-inch or greater diameter (150-inch circumference).

Protected tree means a tree regulated by the Town of Los Gatos as set forth in Section. 29.10.0960, Scope of protected trees.

Significant impact on a property from a tree means an unreasonable interference with the normal and intended use of the property. In determining whether there is a significant impact, the typical longevity of the subject tree species, the size of the tree relative to the property, and whether the condition can be corrected shall be considered. Normal maintenance, including but not limited to pruning not requiring a permit under this division, and leaf removal and minor damage to paving or fences shall not be considered when making a determination of significant impact.

Sec. 29.10.0960. - Scope of protected trees.

The trees protected by this division are:

(1) All trees which have a twelve-inch or greater diameter (thirty-seven and one-half-inch circumference) of any trunk or in the case of multi-trunk trees, a total of eighteen inches or greater diameter (fifty-six and one-half-inch circumference) of the sum of all trunks, where such trees are located on developed residential property.

(2) All trees which have an eight-inch or greater diameter (twenty-five-inch circumference) of any trunk or in the case of multi-trunk trees, a total of eight inches or greater diameter (twenty-five-inch circumference) of the sum of all trunks, where such trees are located on developed Hillside residential property.

(3) All trees of the following species which have an eight-inch or greater diameter (twenty-five-inch circumference) located on developed residential property:

a. Blue Oak (Quercus douglasii);
b. Black Oak (Quercus kellogii);
c. California Buckeye (Aesculus californica);
d. Pacific Madrone (Arbutus menziesii).

(4) All trees which have a four-inch or greater diameter (twelve and one half-inch circumference) of any trunk, when removal relates to any review for which zoning approval or subdivision approval is required.

(5) Any tree that existed at the time of a zoning approval or subdivision approval and was a specific subject of such approval or otherwise covered by subsection (6) of this section (e.g., landscape or site plans).

(6) Any tree that was required by the Town to be planted or retained by the terms and conditions of a development application, building permit or subdivision approval in all zoning districts, tree removal permit or code enforcement action.

(7) All trees, which have a four-inch or greater diameter (twelve and one half-inch circumference) of any trunk and are located on property other than developed residential property.

(8) All publicly owned trees growing on Town lands, public places or in a public right-of-way easement, which have a four-inch or greater diameter (twelve and one-half-inch circumference) of any trunk.

(9) A protected tree shall also include a stand of trees, the nature of which makes each dependent upon the other for the survival of the stand.

(10)The following trees shall also be considered protected trees and shall be subject to the pruning permit requirements set forth in section 29.10.0982 and the public noticing procedures set forth in section 20.10.0994:

a. Heritage trees;
b. Large protected trees.

Sec. 29.10.1005. - Protection of trees during construction.

a) Protective tree fencing shall specify the following:

(1) Size and materials. Six (6) foot high chain link fencing, mounted on two-inch diameter galvanized iron posts, shall be driven into the ground to a depth of at least two (2) feet at no more than ten-foot spacing. For paving area that will not be demolished and when stipulated in a tree preservation plan, posts may be supported by a concrete base.

(2) Area type to be fenced. Type I: Enclosure with chain link fencing of either the entire dripline area or at the tree protection zone (TPZ), when specified by a certified or consulting arborist. Type II: Enclosure for street trees located in a planter strip: chain link fence around the entire planter strip to the outer branches. Type III: Protection for a tree located in a small planter cutout only (such as downtown): orange plastic fencing shall be wrapped around the trunk from the ground to the first branch with two-inch wooden boards bound securely on the outside. Caution shall be used to avoid damaging any bark or branches.

(3) Duration of Type I, II, III fencing. Fencing shall be erected before demolition, grading or construction permits are issued and remain in place until the work is completed. Contractor shall first obtain the approval of the project arborist on record prior to removing a tree protection fence.

(4) Warning sign. Each tree fence shall have prominently displayed an eight and one-half-inch by eleven-inch sign stating: "Warning—Tree Protection Zone—This fence shall not be removed and is subject to penalty according to Town Code 29.10.1025."

(b) All persons, shall comply with the following precautions:

(1) Prior to the commencement of construction, install the fence at the dripline, or tree protection zone (TPZ) when specified in an approved arborist report, around any tree and/or vegetation to be retained which could be affected by the construction and prohibit any storage of construction materials or other materials, equipment cleaning, or parking of vehicles within the TPZ. The dripline shall not be altered in any way so as to increase the encroachment of the construction.

(2) Prohibit all construction activities within the TPZ, including but not limited to: excavation, grading, drainage and leveling within the dripline of the tree unless approved by the Director.

(3) Prohibit disposal or depositing of oil, gasoline, chemicals or other harmful materials within the dripline of or in drainage channels, swales or areas that may lead to the dripline of a protected tree.

(4) Prohibit the attachment of wires, signs or ropes to any protected tree.

(5) Design utility services and irrigation lines to be located outside of the dripline when feasible.

(6) Retain the services of a certified or consulting arborist who shall serve as the project arborist for periodic monitoring of the project site and the health of those trees to be preserved. The project arborist shall be present whenever activities occur which may pose a potential threat to the health of the trees to be preserved and shall document all site visits.

(7) The Director and project arborist shall be notified of any damage that occurs to a protected tree during construction so that proper treatment may be administered.

Sec. 29.10.0994. - Additional procedures for heritage and large protected tree

(1) These procedures are established for the review of Heritage tree and large protected tree removal or pruning permit applications where a permit is requested for a tree that is not dead, severely disfigured, profoundly diseased, or an Extreme or High Risk on the ISA Tree Risk Rating Matrix, and where findings (1) or (2) above cannot be made.

(2) In addition to the fee and application materials required by section 29.10.0980 or section 29.10.0982, the applicant will be required to submit one (1) set of stamped, addressed envelopes for neighboring residents and property owners. The Planning Department will assist the applicant in determining the properties to be notified (all properties abutting the applicant's parcel, properties directly across the street and the two (2) parcels on each side of it).

(3) The Director shall review the application using the Standards of Review set forth in section 29.10.0990 and the Required Findings set forth in section 29.10.0992.

(4) If the Director intends to approve the application, a "Notice of Pending Issuance of Tree Removal or Pruning Permit" will be mailed to neighboring residents and property owners including any applicable conditions, and required tree replacement requirements. The notice will describe the proposed tree removal or pruning, and that the permit will be issued unless there is an objection. Any interested party shall have ten (10) days from the date of the "Notice of Pending Issuance of Tree Removal or Pruning Permit" to notify the Director in writing of any concerns or problems.

(5) If a written objection is not filed within the ten-day period, the permit will be issued. If a written objection is filed and a resolution is found that meets all parties' concerns then the permit will also be issued.

(6) If an objection is filed in a timely manner and a mutually acceptable resolution cannot be agreed upon with the Director within ten (10) days, the objecting party shall be so advised and

shall be provided an additional five (5) days to file a formal appeal of the tree removal or pruning permit with the Town, which shall be scheduled for consideration by the Planning Commission. All property owners and residents notified under section 29.10.0994(4) shall be notified of the Planning Commission meeting.

Sec. 29.10.0995. - Disclosure of information regarding existing trees.

(a) Any application for a discretionary development approval, or for a building, grading or demolition permit where no discretionary development approval is required, shall be accompanied by a signed tree disclosure statement by the property owner or authorized agent which discloses whether any protected trees exist on the property which is the subject of the application, and describing each such tree, its species, size (diameter, canopy dripline area, height) and location. This requirement shall be met by including the following information on plans submitted in connection with the development application.

(b) The location of all trees on the site and in the adjacent public right-of-way which are within thirty (30) feet of the area proposed for development, and trees located on adjacent property with canopies overhanging the project site, shall be shown on the plans, identified by species, size (diameter, canopy, dripline area, height), and location.

(c) Within the dripline area or area that would affect a protected tree, the location of shrubs and other vegetation subject to development shall be shown on the plans.

(d) The director may require submittal of such other information as is necessary to further the purposes of this division including but not limited to photographs.

(e) Disclosure of information pursuant to this section shall not be required when the development for which the approval or permit is sought does not involve any change in building footprint nor any grading, trenching or paving.

(f) Knowingly or negligently providing false or misleading information in response to this disclosure requirement shall constitute a violation of this division.

Sec. 29.10.1010. - Pruning and maintenance.

All pruning shall be in accordance with the current version of the International Society of Arboriculture Best Management Practices-Tree Pruning and ANSI A300-Part 1 Tree, Shrub and Other Woody Plant Management-Standard Practices, (Pruning) and any special conditions as determined by the Director. For developments, which require a tree preservation report, a certified or consulting arborist shall be in reasonable charge of all activities involving protected trees, including pruning, cabling and any other work if specified.

(1) Any public utility installing or maintaining any overhead wires or underground pipes or conduits in the vicinity of a protected tree shall obtain permission from the Director before performing any work, including pruning, which may cause injury to a protected tree (e.g. cable TV/fiber optic trenching, gas, water, sewer trench, etc.).

(2) Pruning for clearance of utility lines and energized conductors shall be performed in compliance with the current version of the American National Standards Institute (ANSI) A300 (Part 1)-Pruning, Section 5.9 Utility Pruning. Using spikes or gaffs when pruning, except where no other alternative is available, is prohibited.

(3) No person shall prune, trim, cut off, or perform any work, on a single occasion or cumulatively, over a three-year period, affecting twenty-five percent or more of the crown of any protected tree

without first obtaining a permit pursuant to this division except for pollarding of fruitless mulberry trees (Morus alba) or other species approved by the Town Arborist. Applications for a pruning permit shall include photographs indicating where pruning is proposed.

(4) No person shall remove any Heritage tree or large protected tree branch or root through pruning or other method greater than four (4) inches in diameter (twelve and one-half (12.5) inches in circumference) without first obtaining a permit pursuant to this division.

Tree Canopy Replacement Standard — Town of Los Gatos

Canopy Size of Removed Tree[1]	**Replacement Requirement[2, 4]**	**Single Family Residential Replacement Option[3, 4]**
10 feet or less	Two 24-inch box trees	Two 15-gallon trees
More than 10 feet to 25 feet	Three 24-inch box trees	Three 15-gallon trees
More than 25 feet to 40 feet	Four 24-inch box trees; or Two 36-inch box trees	Four 15-gallon trees
More than 40 feet to 55 feet	Six 24-inch box trees; or Three 36-inch box trees	Not Available
Greater than 55 feet	Ten 24-inch box trees; or Five 36-inch box trees	Not Available

[1] To measure an asymmetrical canopy of a tree, the widest measurement shall be used to determine canopy size.
[2] Often, it is not possible to replace a single large, older tree with an equivalent tree(s). In this case, the tree may be replaced with a combination of both the Tree Canopy Replacement Standard and in-lieu payment in an amount set forth by Town Council resolution paid to the Town Tree Replacement Fund.
[3] Single Family Residential Replacement Option is available for developed single family residential lots under n thousand (10,000) square feet that are not subject to the Town's Hillside Development Standards and Guidelines. All fifteen-gallon trees must be planted on-site. Any in-lieu fees for single family residential shall be based on twenty-four-inch box tree rates as adopted by Town Council.
[4] Replacement Trees shall be approved by the Town Arborist and shall be of a species suited to the available planting location, proximity to structures, overhead clearances, soil type, compatibility with surrounding canopy and other relevant factors. Replacement with native species shall be strongly encouraged. Replacement requirements in the Hillsides shall comply with the Hillside Development Standards and Guidelines Appendix A and section 29.10.0987 Special Provisions—Hillsides.

TESTING AND ANALYSIS

Site, trees, and plans visually inspected from the ground. Trees measured using diameter tape. TPZ radii established using a tape measure.

DISCUSSION

Tree Impacts

All of the protected trees impose *significant impact on [the] property* due to having substantial amounts of roots and limbs encroaching into the building envelope. Mitigation of encroaching limbs and roots can be accomplished by pruning trees #2-4, 6 and 8. However, mitigation of encroaching roots originating from **coast oak tree #1** involves the removal of up to 50% or more of the tree's roots, including buttress roots. Root pruning to this extent exceeds acceptable parameters and will destabilize the tree. This level of roots loss will also likely cause far reaching physiological stresses that would be difficult to manage.

Roots origination from **coast live oak #2** do not appear to have uplifted the existing driveway. Excavation for the installation of the new driveway will occur near the base of the tree and will likely result in some root loss; the extent of which I cannot estimate, not until the driveway is removed and an exploratory trench excavated by hand to the required depth to expose the roots

for inspection. Installation of the new driveway should be composed of a pervious pavers preferably placed on top of a geocell material. Geocell materials are designed to transfer loads laterally rather than vertically. The exact design of the driveway needs further discussion.

Roots originating from **coast live oaks #3 and 4** will be impacted by installation of the new driveway and a reduced tree protection zone is required. The tree protection fence should be erected no closer than 10 feet to the trees. A trench should be dug by hand just outside of the TPZ fence to expose the roots prior to any root pruning. See Root Pruning Specifications below. The driveway should be constructed at a distance no closer than 11 feet to the bases of the two trees.

Roots in the **critical root zone (CRZ)** originating from **Olive #5** will be impacted by installation of the proposed garage. The tree is poorly structured with co-dominant stems and included bark. I estimated 30% to 50% root loss.

Roots originating from **coast live oak #6** will be impacted by installation of the proposed garage. The tree is a desirable specimen that is well structured and adds value to the property. The principals involved with this project wish to retain the tree despite the challenges involved with protection and preservation.

The foundation of the garage will be a cement slab with a perimeter foundation excavated to a depth of 12 inches below level grade at a distance of 5 feet from the tree; within the CRZ. As such, appropriate tree protection fencing erected at a minimum distance of 6x trunk diameter is not possible.

The above ground portions of the tree can be protected by installing Type III TPZ wrap. The structural and lateral roots below 12 inches grade can be preserved as well. A percentage of fine root loss is inevitable. Excavate an exploratory trench dug by hand and/or by using high compressed air tools to the required depth and leave intact all roots 2 inches in diameter or greater. The exposed roots that will be retained should be wrapped with burlap the day of being exposed. The burlap should be wetted and kept moist until the foundation is poured and the area backfilled.

Accommodations for providing space for root growth through the foundation, if needed, will be accomplished by wrapping the roots with a foam-wrap that is designed to be used with cement, then removed after the cement sets. The wrap should create 2 to 4 inches of space around each root. After the cement has set and the foam wrap removed, there will be adequate space for secondary growth or the expansion of the roots.

Roots originating from **Olive #7** will be impacted by development activities. The tree is poorly structured with co-dominant stems and included bark. I estimated 20% to 40% root loss.

Roots and limbs originating from **Coast live oak #8** will be impacted by development activities. There appears to be enough room to erect a Type I TPZ at 6x trunk diameter on the side facing development and extending to 12x trunk diameter laterally.

Prior to beginning development activities, the tree's limbs should be pruned to gain vertical and side clearance (see Pruning Specifications below), and a trench should be dug by hand just outside of the TPZ fence to expose the roots prior to any root pruning. Properly prune the roots as they are exposed. See Root Pruning Specifications below.

Additionally, along with providing irrigation water prior to development, during, and after development, I recommend the application of a tree growth regulator to all the oaks being retained to aid in the trees' recovery. See Tree Growth Regulator below.

Supplemental Irrigation

Root pruning should be avoided where possible, but circumstances appear to indicate root pruning to one extent or another is likely required for **coast live oaks #2-4, 6 and 8**. Irrigation should be provided prior to and after pruning roots.

Irrigation water should penetrate the soil to the depth of the tree roots, generally within the upper 6 to 18 inches of the original soil surface. It is best to monitor soil moisture under high-value trees with soil moisture sensors. Lacking sensors, a general rule in humid, temperate regions is to **provide a minimum of 1 inch of irrigation water weekly in the absence of normal rainfall.** With drought adapted species in Mediterranean climates, a guideline is to provide 1 or 2 inches monthly. Water needs will vary with the season and tree species. Irrigation application methods include aboveground sprinklers, bubblers, soaker hoses, or injection of water into the soil. (Fite pg. 23)

Tree Growth Regulator

Tree growth regulators (TGR's) are applied by basal drench or by soil injection. They reduce the vegetative growth of trees and the saved resources (carbohydrates) are re-directed. Re-direction of the resources result in increased fine root growth; thicker and greener leaves that lose less water through transpiration; an increase in chlorophyll production in the leaves; and higher rates of photosynthesis, all resulting in a greater percentage of resources (carbohydrates) being stored in the wood. For construction impacted trees that are subject root stresses, TGR's can enhance efforts to preserve the long-term health of trees. Application of TGR's to construction effected trees does not negate the need to apply supplemental irrigation. Moreover, the positive effects of applying TGR's is not immediate, but will manifest over the course of three years.

Pruning Specifications

All tree pruning and removal activities shall be performed prior to beginning development activities by a qualified Arborist with a C-61/D-49 California Contractors License. Tree maintenance and care shall be specified in writing according to American National Standard (ANSI) for Tree Care Operations: Tree, Shrub and Other woody Plant Management: Standard Practices parts 1 through 10, adhering to ANSI Z133.1 safety standards and local regulations. Work shall be performed according to the most recent edition of the International Society of Arboriculture© Best Management Practices for each subject matter (Tree Pruning etc.) *The use of spikes and/or gaffs when climbing is strictly prohibited*.

- *Elevate Canopy* (a.k.a. raise canopy)-The selective removal of lower growing or low hanging limbs to gain vertical clearance. Do not remove living stems greater than 4" in diameter without the approval of the Project Arborist.
- *Reduce end-weight*-Cut the offending stem[s] back to a lateral that is ⅓ the diameter or more of the parent stem and capable of maintaining apical dominance. Remove no more than 25 percent of the living tissue from the offending stem[s]. Remove all existing dead stubs and/or damaged branches per occurrence. Do not cut back into living stems that are 4" or greater in diameter without the approval of the Project Arborist.

Root Pruning Specifications

Root pruning is the process of cleanly cutting roots prior to mechanical excavation to minimize damage to the tree's root system. Root pruning and root damage from excavation can cause great harm to a tree, especially if structural roots are affected. Damage to these roots can reduce tree health and/or structural stability…Air, water, [or hand excavation] prior to root pruning allows the arborist to examine the roots and determine the best places to make cuts, preferably beyond sinker roots or outside root branch unions. (Fite pg. 17)

The principles of compartmentalization of decay in trees apply to roots as well as to stems. Because root injuries are common in nature, roots have evolved to be strong compartmentalizers. Small root cuts do not usually lead to extensive decay. Decay development as a result of root cutting can take years or decades to develop in temperate climates. Just as flush cutting branches is no longer an acceptable practice, a pruning cut that removes a root at its point of origin should not cut into the parent root. The final cut should result in a flat surface with adjacent bark firmly attached. Smaller pruning cuts are preferred. (Costello pg. 17)

- In the event roots 2" in diameter or greater are encountered during excavation, they should be left intact. A determination will be made on site by the project arborist whether or not the root can be pruned.
- Pruning roots 2" in diameter or greater requires the use of a commercial grade 15-amp reciprocating saw with at least 3 new and unused wood cutting blades available while on-site.
- Cleanly sever the root without ripping or tearing the root tissue. It is preferable to cut back to a lateral root, much like when reducing the length of a stem or branch.
- A new unused Arborist hand saw will also be allowed i.e. Fanno™ Tri-Edge Blade Hand Saw.
- Backfill immediately or cover exposed roots with wet burlap and keep moist until areas are backfilled.

Underground Utilities

All underground utilities shall be routed outside the dripline of any protected tree. If the utilities cannot be routed outside the dripline, use boring equipment or hand excavate the trenches leaving roots 2 inches in diameter or greater intact and route the utilities below the roots.

CONCLUSION

It is my professional opinion that trees #1-8 create *significant impact* upon the subject property because they are located along the property lines and roots originating from the trees encroach well into the building envelope. Practical efforts are being employed to ensure the greatest number of native oaks possible are being preserved.

The proximity of the proposed garage to coast live oak #6 makes adherence to strict tree protection best management policies impossible. Moving forward with efforts to protect and preserve the tree to the best of our abilities will likely prove successful.

Finally, should all the tree protection and preservation techniques and methodologies discussed throughout this report be explained to, understood, and strictly adhered to by all parties responsible for applying the practical aspects of this project, there is every reason to believe the trees being retained will survive the effects of development impacts and thrive well into the future.

RECOMMENDATIONS

1. Submit with this report one (1) set of stamped, addressed envelopes for neighboring residents and property owners. The Planning Department will assist the applicant in determining the properties to be notified (all properties abutting the applicant's parcel, properties directly across the street and the two (2) parcels on each side of it). Sec. 29.10.0994 (2)
2. Prior to commencing construction activities, ensure that all parties responsible for applying the practical aspects of this project are aware of and clearly understand all aspects of this tree protection and preservation plan, and strictly adhere to the recommendations.
3. Irrigate trees #2-4, 6, and 8 two to four weeks prior to beginning demolition activities and continue through the duration of the project weekly. Re-evaluate the irritation schedule in the fall of 2021. See Supplemental Irrigation.
4. Apply a tree growth regulator by soil drench or by soil injection two to four weeks prior to beginning demolition activities to trees #2-4, 6, and 8. (Recommended).
5. Place 4 to 6 inches of wood mulch under the driplines of trees #2-4, 6, and 8.
6. Install Type III TPZ wrap to surround tree #2 to a height of no less than 6 feet. See Appendix C.
7. Erect single contiguous Type I TPZ fence to surround trees #3 and 4 with a radius of no less than 11 feet on the side facing development activities extending the fence to the driplines laterally. See Appendix B.
8. Install Type III TPZ wrap to a height of no less than 6 feet on tree #6.
9. Erect Type I TPZ fence to surround tree #8 with a radius of no less than 11 feet on the side facing development activities, extending the fence 12x trunk diameter laterally on both sides.
10. With the removal permits in hand, remove trees #1, and 5 and 7, and prune tree #8 in a manner described as elevate crown and reduce end-weights for clearance. See Pruning Specifications.
11. For trees #2-4, 6, 8 and with a certified arborist on site to monitor activities, excavate roots in the striped areas depicted on the TPZ Map by hand, and/or by using high compressed air tools. Prune roots less than 2 inches in diameter as directed by the certified arborist monitoring activities.
12. Wrap exposed roots 2 inches or greater in diameter originating from **coast live oak #6** with burlap. Additionally, the excavated areas where pruned roots are exposed should be covered with burlap. Secure the burlap to the ground using 9-inch landscape staples. Wet the burlap in both cases. If needed, wrap with foam wrap all roots that are growing where the perimeter foundation will be located.
13. As soon as the cement sets, remove the foam wrap from the roots of coast live oak #6, and backfill the perimeter foundation within 24 hours of removing these materials.
14. Leave all Type I tree protection fencing and Type III tree protection wrap in place for the duration of the project.
15. Alert the project arborist within 24 hours of damages inflicted upon any protected tree discussed herein.
16. Re-evaluate the supplemental irrigation needs of the trees at the end of the project.

Glossary

buttress roots - roots at the trunk base that help support the tree.

critical root zone (CRZ) - An area of root crown determined to be the minimal area in which no root pruning or land development shall occur. This varies by tree species, relative age, and individual vigor.

Crown - upper part of a tree, measured from the lowest branch, including all the branches and foliage.

diameter at breast height (DBH) - Tree diameter measured at 54 inches above level grade.

scaffold branches-permanent or structural branches of a tree.

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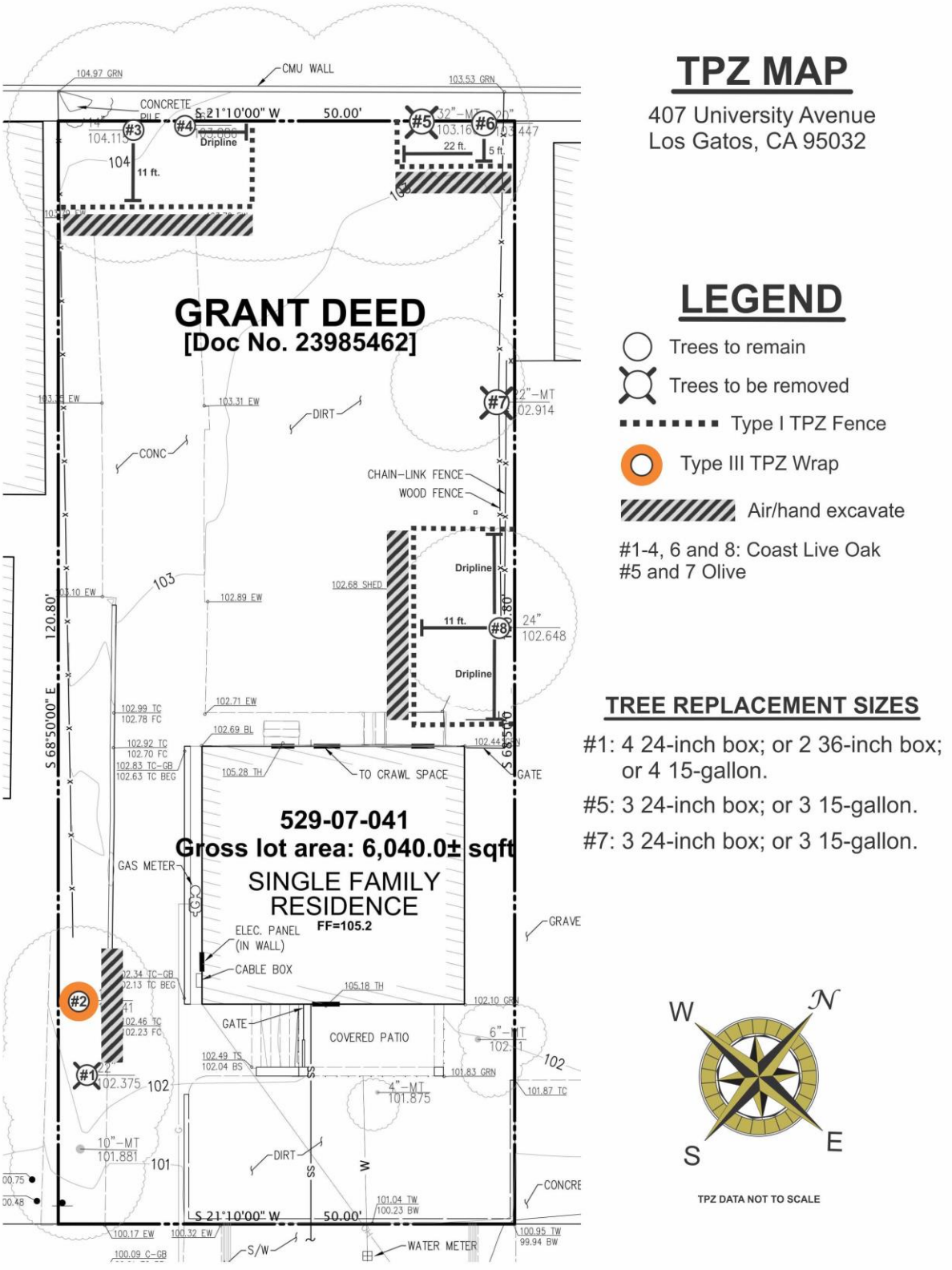
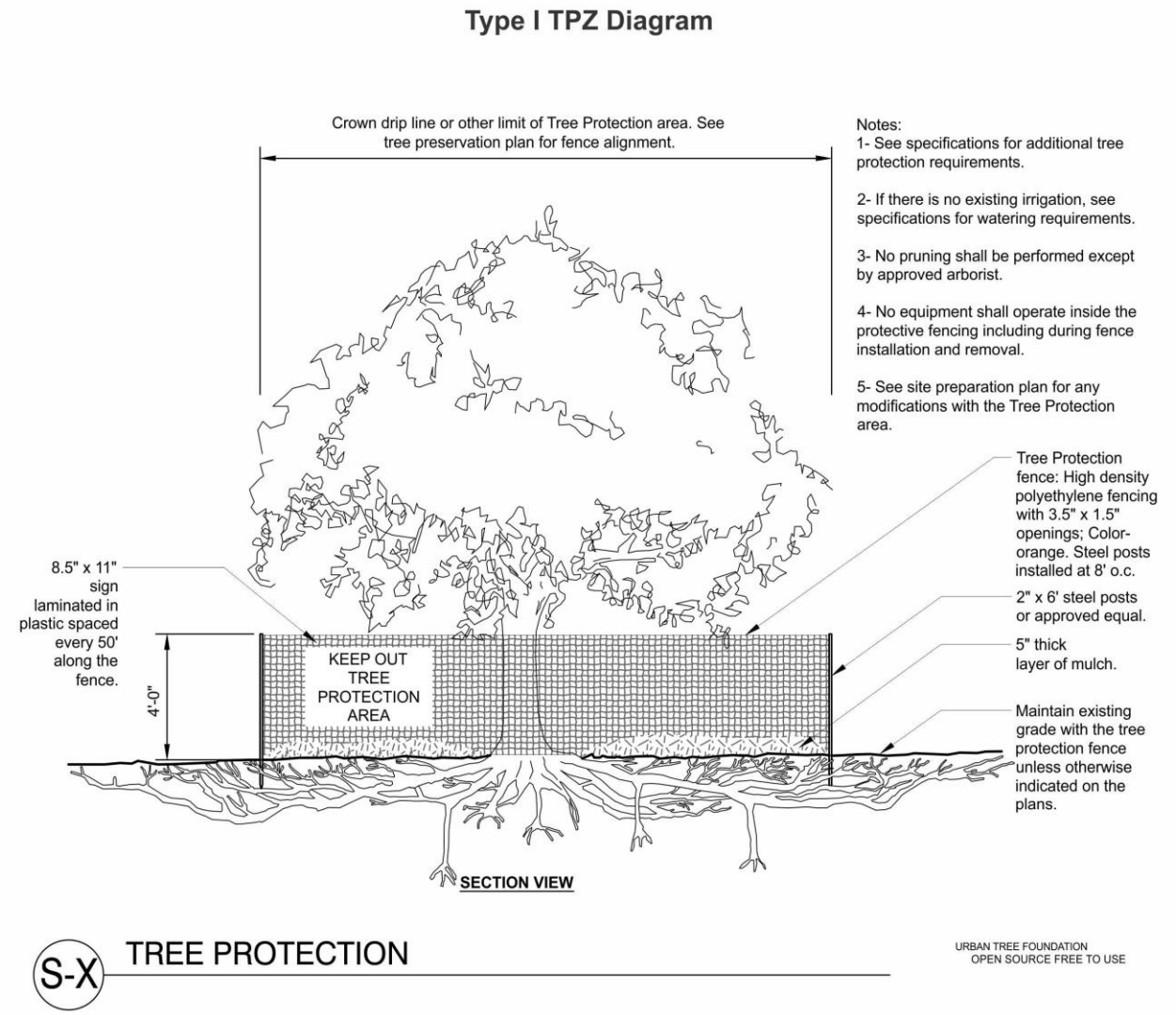
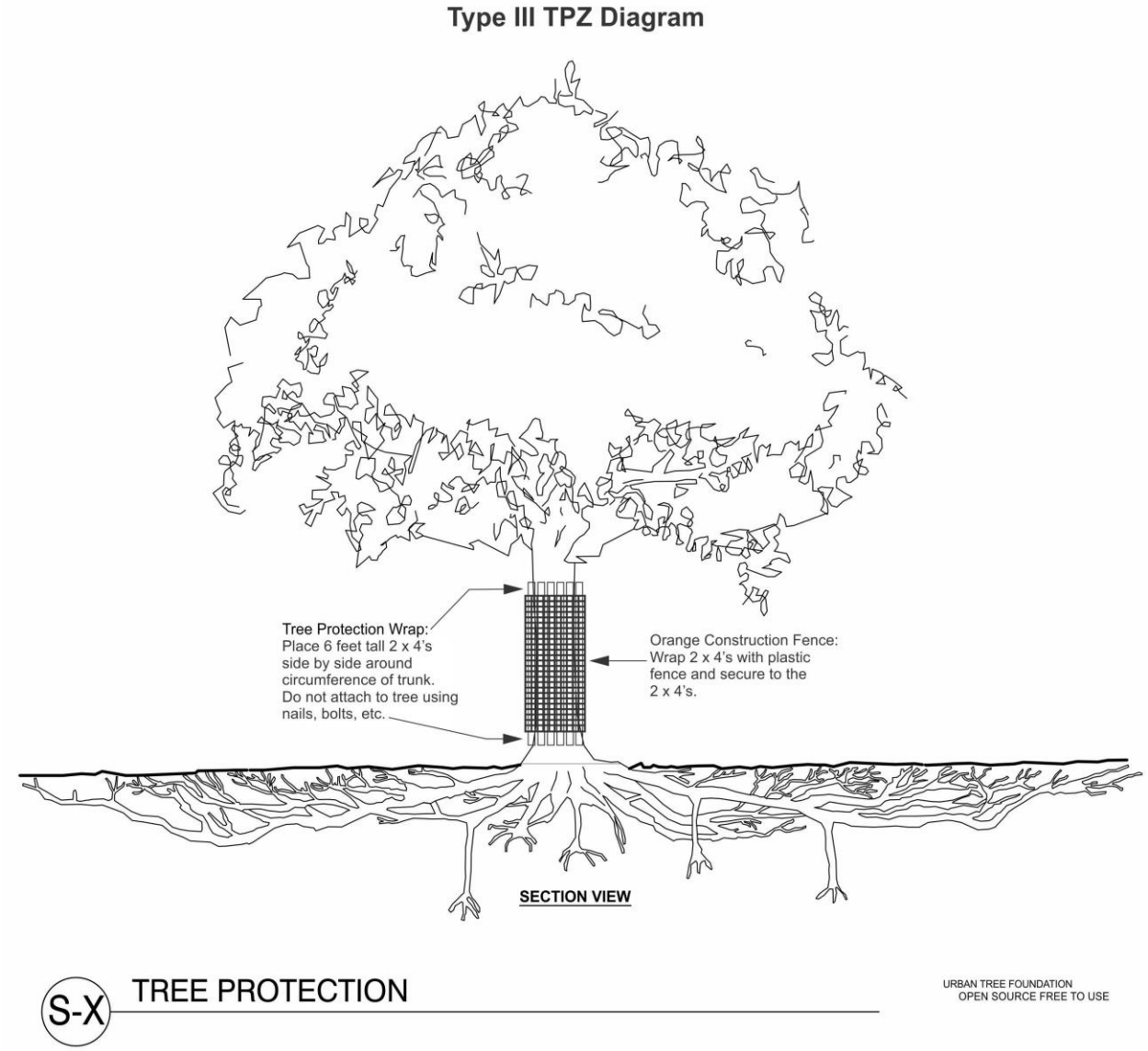
Appendix A: TPZ Map



Appendix B: Type I TPZ Diagram



Appendix C: Type III TPZ Diagram



Appendix D: Supporting Photographs: Image 1 – Coast Live Oaks #1 and 2.

D2: Image 2: Coast Live Oaks #3, 4, and 6: Olives #5 and 7.

D3: Image 3: Coast Live Oak #8.

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.

2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other government regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.

4. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

5. Loss, alteration, or reproduction of any part of this report invalidates the entire report.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.

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8. This report and the values expressed herein represent the opinion of the consult/appraiser, and the consult/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

10. Unless expressed otherwise: 1) information in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in future.

Respectfully submitted,

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